CLAIMS

I claim:

1. A reusable bomb diffuser for use in neutralizing the potentially harmful affects of exploding gases and debris resulting from the detonation of a land mine or other exploding device housed under or therein, so that the velocity of expanding gases is slowed and the laterally moving gases and debris are set on an upward course for release from said diffuser in a substantially upward direction, said bomb diffuser comprising:

an outer chamber with solid side walls and a top surface with multiple openings therethrough;

a core structure centered within said outer chamber and firmly secured to said ouoter chamber, said core structure having a bottom surface with an opening through said bottom surface; and

a plurality of vanes each attached to said core structure with progressive separation of approximately three degrees whereby the lowest ones of said vanes are substantially horizontally-extending and the highest ones of said vanes are substantially vertically-extending, and further whereby the velocity of expanding gases from an explosion within said core structure is reduced by said vanes and directed upwardly for eventual exiting via said multiple openings in said top surface.

2. The diffuser of claim 1 wherein said solid side walls have an outside surface and further comprising a plurality of reinforcement stiffeners attached to said outside surface.

3. The diffuser of claim 2 further comprising a bottom flange attached to said outer chamber and wherein said reinforcement stiffeners are also attached to said bottom flange.

4. The diffuser of claim 1 wherein said top surface has an opening communicating with a venturi configured for introducing into said core structure ignition causing means adapted for setting off a non-detonated exploding device covered by said core structure.

5. The diffuser of claim 1 further comprising a transport means adapted for facilitated movement of said outer chamber from one needed location to another.

6. The diffuser of claim 5 wherein said transport means also provides reinforcement of said side walls of said outer chamber.

7. The diffuser of claim 1 wherein said transport means is selected from a group consisting of motorized vehicles, movement means adapted for remotely raising and lowering said outer chamber, rods, poles, handles, and handles having an opening configured and positioned to communicate with a venturi.

8. The diffuser of claim 1 wherein said vanes each have a rectangular cross-section.

9. The diffuser of claim 1 wherein said multiple openings collectively have a configuration that facilitates the formation of a Karmen vortex ring in the upwardly-moving exploding gases and debris exiting from said outer chamber that further reduces their energy.

10. The diffuser of claim 1 wherein said opening in said bottom surface of said core structure extends its full width and length dimension.

11. The diffuser of claim 1 wherein said core structure is selected from a group consisting of core structures having a rectangular cross-sectional configuration, core structures having the cross-sectional configuration of a polygon, core structures having an upwardly tapering configuration, core structures that position upwardly directed vanes adjacent to said top surface of said outer chamber, core structures that position upwardly directed vanes near to

said top surface of said outer chamber, and core structures that position upwardly directed vanes at a spaced-apart distance below said top surface of said outer chamber.

12. A method for neutralizing the potentially harmful affects of exploding gases and debris resulting from the detonation of a land mine or other exploding device, so that the velocity of the expanding gases is slowed and the laterally moving gases and debris are redirected and forced to travel in a substantially upward direction, said method comprising the steps of:

providing an outer chamber with solid side walls and a top surface with multiple openings therethrough, a core structure with an open bottom, and a plurality of vanes;

attaching said vanes to said core structure with progressive three-degree separation whereby the lowest ones of said vanes are substantially horizontally-extending and the highest ones of said vanes are substantially vertically-extending;

centering said core structure within said outer chamber; and

securely attaching said core structure to said outer chamber whereby the velocity of expanding gases from the detonation of an explosive device positioned within said core structure is reduced by said vanes and laterally traveling gases and debris are directed upwardly for release from said outer chamber via said multiple openings in said top surface.

13. The method of claim 12 wherein said solid side walls have an outside surface and further comprising the step of providing a plurality of reinforcement stiffeners and the step of attaching said reinforcement stiffeners to said outside surface.

14. The method of claim 13 further comprising the step of providing an outer chamber with a bottom flange and the step of attaching said reinforcement stiffeners to said bottom flange.

15. The method of claim 12 further comprising the steps of providing a core structure with a venturi, making an opening in said top surface of said outer chamber for introduction into said core structure of ignition causing means adapted for setting off a non-detonated exploding device covered by said core structure, and placing said opening in said top surface of said outer chamber so that it sufficiently communicates with said venturi for prompt movement of all usable ignition causing means downward through said venturi.

16. The method of claim 12 further comprising the step of providing a transport means adapted for facilitated movement of said outer chamber from one needed location to another.

17. The method of claim 16 wherein said transport means is also adapted for reinforcement of said side walls of said outer chamber.

18. The method of claim 12 wherein said vanes each have a rectangular cross-section.

19. The method of claim 12 wherein said multiple openings collectively have a configuration that facilitates the formation of a Karmen vortex ring in the upwardly-moving exploding gases exiting therefrom that further reduces their energy.

20. The method of claim 12 wherein said core structure is selected from a group consisting of core structures having a rectangular cross-sectional configuration, core structures having the cross-sectional configuration of a polygon, core structures having an upwardly tapering configuration, core structures that position upwardly directed vanes adjacent to said top surface of said outer chamber, core structures that position upwardly directed vanes near to said top surface of said outer chamber, and core structures that position upwardly directed vanes at a spaced-apart distance below said top surface of said outer chamber.